

all to be congratulated on a valuable contribution to the subject.

C. I. B. VOGÉ.

CONTRACEPTION

Vogé, Cecil I. B., B.Sc., Ph.D., F.R.S.E.
The Chemistry and Physics of Contraceptives. London, 1933. Jonathan Cape. Pp. 288. Price 12s. 6d.

WHETHER birth control is a blessing or a curse to the human race is a matter of continual discussion between eugenists of various schools of thought; but, the fact remains, it is a practice that has come to stay, and there appears to be evidence that it is spreading through all grades of society. It is therefore particularly necessary that the different methods and appliances that are so widely advertised and exhibited should be investigated and evaluated, as regards not only their efficacy, but also their possible physiological effect upon the user, whether male or female.

The book under review would appear to fulfil these needs. It is divided into seven chapters in which are discussed anatomy and physiology in relation to spermicides, the action of chemicals on spermatozoa, vehicles for spermicides, proprietary chemical spermicides, and practical considerations. This is not the place to go into a detailed discussion of the various experiments that the author has carried out in order to test the different contraceptive products; but it is gratifying to learn that various firms have been sufficiently interested to provide information and material for experiment. In a useful appendix this information is tabulated; and when it is realized that no less than 162 different proprietary articles are described, it is at once evident that an authoritative book of this kind is urgently required.

In a book so good criticism is called for, and I would therefore suggest that in a future edition Figures 3, 4, 5, and 6 should be replaced by others. These Figures,

taken from Dickinson and Bryant, would be unintelligible to those knowing no anatomy and useless to those who do. Doubtless in the original work (*Control of Conception*) the figures were adequately explained in the text; but as Dr. Vogé does not do this in his book, confusion is inevitable. This is, however, only a small blemish in an otherwise clear and admirable discussion of the methods of contraception.

D. WARD CUTLER.

GENES AND EVOLUTION

Hurst, C. C., Ph.D. *The Mechanism of Creative Evolution.* Cambridge, 1932. University Press. Pp. 365. Price 21s.

IF the English school of geneticists were slow to accept the chromosome theory of heredity, Dr. Hurst, himself one of the pioneers, has, in this book, made ample amends. The gene is regarded not merely as an entity postulated to explain the phenomena of Mendelian inheritance, but as the fundamental unit of life itself. In fact, Dr. Hurst looks beyond it to proto-genes, and is able to contemplate without a qualm progenes or autocatalysts swimming about in the primeval ocean.

The exposition of the science of heredity is admirably carried out. At only one point, one imagines, would the reader hitherto unfamiliar with the subject find it difficult to follow the argument. This is the section dealing with the proof of the linear order of the genes. It would be possible here to make a dogmatic statement, or to present the proof. The second alternative is selected, and in view of the importance of this step in the genetical argument it is a pity that it has not been explained more fully.

The book contains more than its title implies, for it deals largely with problems related to the nature of living things, as well as with organic evolution. In regard to the latter, the author is, of course, brought up against the difficulty that confronts every writer who is making a biological rather than a metaphysical

approach, and that is that the factors affecting mutation are still unknown. If the mutation problem is regarded as the central problem of evolution, any discussion must at present appear vague, and there is in fact little to say. Dr. Hurst mentions short-wave radiations and leaves it at that, but he does not mention the calculations of Muller and Mott-Smith, showing that the amount of naturally occurring radiation is insufficient to account for the ordinary rate of mutation in *Drosophila*.

As a botanist, Dr. Hurst perhaps naturally devotes more space to changes affecting chromosome complexes, single chromosomes, and sections of chromosomes than he does to point mutations; and, of course, it may be that it will be found as knowledge accumulates that the former processes have been more important in the elaboration of species differences. A good deal of space is devoted to the attempt to show that genetics can provide a basis for specific classification. The author is on very familiar ground here, for he has himself made notable contributions to the subject in his work on roses and other forms. The net has been cast very wide and there can be few relevant observations and experiments that have not been reviewed.

It is pleasant to find a full discussion on the filter-passing viruses, bacteriophages, etc., for it is difficult to believe that a consideration of the very small has not a big contribution to make to the general problem. It will be realized, of course, that Dr. Hurst is being constructive rather than critical. He is prepared to accept much that is perhaps unproved as yet. If, however, this is borne in mind, the reader can enjoy a book which is a most successful effort to bring together a mass of information and weave it into an ordered whole, full of hints as to some of the advances in biology that are waiting round the corner.

The illustrations are admirable—there are no fewer than 199 of them—and the production of the volume generally is a credit to the publishers.

J. A. FRASER ROBERTS.

PSYCHOLOGY

McDougall, Professor William, F.R.S. *The Energies of Men: A Study of the Fundamentals of Dynamic Psychology.* London, 1933. Methuen. Pp. ix + 395. Price 8s. 6d.

THIS volume is an abridged and simplified version of Professor McDougall's two larger works—*The Outline of Psychology* and *The Outline of Abnormal Psychology*. It is, however, by no means a mere condensation; it is a new and self-contained study. In some respects Professor McDougall has even modified his views and his terminology; he has, too, introduced a fuller treatment of the problems of instinct and intelligence and a constructive theory of the processes of learning.

As it stands, the book should at once take its place as one of the most valuable of existing text-books; but it is something more than a mere text-book for college use. It is written in a clear and interesting style, with a continual eye to practical questions; and thus is admirably suited to give the ordinary reader that minimum acquaintance with the science of the mind without which he is scarcely fitted to be a citizen of the modern world.

As the sub-title indicates, Professor McDougall's approach is essentially functional and dynamic. Hence he rejects the approach of the ordinary manual, which usually starts off with the nervous system, physiological reflexes, and the separate sensations. He protests that, if the student is taught to view a human being as simply a kind of machine whose activities consist in mechanical responses to isolated sense-stimuli, then the time he has spent on so-called psychology is not merely wasted, but worse than wasted. Throughout, therefore, he discards the materialistic standpoint, and insists on the purposive nature of all human action.

Professor McDougall begins with an excellent review of the current schools of psychology. Then, after briefly considering the simpler forms of mental life, he discusses in detail the inherited basis of